

LAGOS CITY POLYTECHNIC, IKEJA
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
DEPARTMENT OF ELECT./ELECT/ AND COMPUTER ENGINEERING
2015/2016 SEMESTER EXAMINATION

COURSE TITLE:	ELECT. ENGR.SCIENCE	NO OF QUESTIONS :	6
COURSE CODE:	EEC 112/115	TIME ALLOWED:	2 HRS
FOR WHOM:	ND YR I	CE, EE FT INSTRUCTIONS:	
ANSWER ANY FOUR	QUESTIONS.		

1. (a) Give Two examples each of Conductors and Semi conductors
 (b) What is the difference between AC and DC ?
 (c) Write down the formula for (i) Current (ii) Voltage and Resistance.

2. (a) A wire of diameter 0.6mm, resistivity $1.1 \times 10^{-6}\Omega\text{m}$ has a resistance of 44Ω .
 Calcualte the length of the wire.
 (b) Determine the two voltages drops across $R_1 = 1.8\Omega$ and $R_2 = 2.2\Omega$ in a circuit.
 (c) State the Kirchoffs Voltage Law.

3. (a) State Coulombs First andsecond law respectively
 (b) Define Electric Field Strength
 (c) What is Relative Permittivity

4. (a) Two plates, each of area 5cm^2 are placed parallel to each other and very close together and a charge of $15 \times 10^{-8}\text{C}$ is stored on the phases. Calculate the electric flux density in the space between the phases.
 (b) What is the value of the following colour codes;
 (i) GREEN BLUE RED
 (ii) BROWN BLACK RED
 (c) What is Capacitor?

5. (a) A coil has a resistance of 50Ω at 0°C , if the temperature coefficient of resistance the coil is $0.0043/^\circ\text{C}$, determine the resistance of the coil at 25°C .
 (b) an electric motor develops 5kW at the speed of 100 rev/min . Calculate
 (i) the work done in 30 mins in kilo watt hour
 (ii) the torque in N-M.
 (c) State Joules Law.

6. (a) Define Mathematically temperature coefficient of resistance (α)
 (b) An electric kettle takes 2kW at 240v . Calculate:
 (i) the current and (ii) the resistance of the heating element.
 (c) Calculate the workdone in moving through a distance of 25m by a force of 20N which acts in the direction of the motion of the body.